AMENDMENTS TO THE CLAIMS

This listing of the claims replaces all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. **[PREVIOUSLY PRESENTED]** A method of controlling system stability of an on-frequency repeater, the method comprising steps of:

generating a signature signal associated with the repeater;

inserting the signature signal into a first RF signal transmitted by the repeater;

detecting a correlation between the signature signal and a second RF signal received by the repeater; and

controlling an effective radiated power (ERP) of the first RF signal transmitted by the repeater, based on the detected correlation.

2. **[PREVIOUSLY PRESENTED]** A method as claimed in claim 1, wherein the step of generating the signature signal comprises steps of:

generating a code signal; and

shaping the code signal.

3. **[PREVIOUSLY PRESENTED]** A method as claimed in claim 2, wherein the step of generating the code signal comprises a step of generating a predetermined sequence of bits.

4. **[PREVIOUSLY PRESENTED]** A method as claimed in claim 3, wherein the predetermined sequence of bits is spectrally white.

5. **[PREVIOUSLY PRESENTED]** A method as claimed in claim 3, wherein the predetermined sequence of bits is pre-selected from among a set of orthogonal bit sequences.

6. **[ORIGINAL]** A method as claimed in claim 2, wherein the step of shaping the code signal comprises a step of modulating the code signal with a predetermined fade signal.

7. **[PREVIOUSLY PRESENTED]** A method as claimed in claim 1, wherein the step of inserting the signature signal into the first RF signal comprises a step of modulating a parameter of the first RF signal.

8. **[ORIGINAL]** A method as claimed in claim 7, wherein the parameter comprises one or more of: a power level and a phase.

9. **[ORIGINAL]** A method as claimed in claim 7, wherein the step of modulating the parameter of the first RF signal comprises simultaneously modulating the parameter of all RF signals within a predetermined wide-band signal path.

10. **[PREVIOUSLY PRESENTED]** A method as claimed in claim 1, wherein the step of detecting a correlation between the signature signal and the second RF signal comprises steps of:

monitoring the second RF signal to detect at least a signal component consistent with the signature signal;

comparing the detected signal component to the signature signal, and generating a correlation signal indicative of a degree of similarity between the detected signal component and the signature signal.

11. **[ORIGINAL]** A method as claimed in claim 10, wherein the step of monitoring the second RF signal comprises steps of:

sampling the second RF signal;

digitally filtering the sample signal;

comparing the filtered signal to a predetermined threshold; and

generating the signal component based on the comparison result.

12. [**ORIGINAL**] A method as claimed in claim 10, wherein the step of comparing the detected signal component to the signature signal comprises steps of:

logically comparing respective successive bits of each of the detected signal component and the signature signal; and

averaging the comparison result.

13. [**ORIGINAL**] A method as claimed in claim 12, wherein the step of logically comparing respective successive bits comprises either one of Exclusive ORing, and ANDing successive bits of each of the detected signal component and the signature signal.

14. [**ORIGINAL**] A method as claimed in claim 10, wherein the step of comparing the detected signal component to the signature signal comprises steps of:

calculating a cross-correlation of the detected signal component and the signature signal; and

comparing the calculation result to a predetermined threshold.

15. [**PREVIOUSLY PRESENTED**] A method as claimed in claim 1, wherein the step of controlling an effective radiated power (ERP) of the first RF signal comprises steps of:

comparing the detected correlation to a predetermined threshold value; and

determining an optimum value of a gain of the repeater using the comparison result.

16. [**PREVIOUSLY PRESENTED**] A system for controlling a system stability of an on-frequency repeater of a wireless communications network, the system comprising:

a signal generator adapted to generate a signature signal associated with the repeater;

a first modulator adapted to insert the signature signal into a first RF signal transmitted by the repeater;

a detector adapted to detect a correlation between the signature signal and a second RF signal received by the repeater; and

a controller adapted to control an effective radiated power (ERP) of the first RF signal transmitted by the repeater, based on the detected correlation.

17. **[PREVIOUSLY PRESENTED]** A system as claimed in claim 16, wherein the signal generator comprises:

a code generator adapted to generate a code signal; and

a signal shaper adapted to shape the code signal.

18. **[PREVIOUSLY PRESENTED]** A system as claimed in claim 17, wherein the code signal comprises a predetermined sequence of bits.

19. **[PREVIOUSLY PRESENTED]** A system as claimed in claim 18, wherein the predetermined sequence of bits is spectrally white.

20. **[PREVIOUSLY PRESENTED]** A system as claimed in claim 18, wherein the predetermined sequence of bits is pre-selected from among a set of orthogonal bit sequences.

21. **[PREVIOUSLY PRESENTED]** A system as claimed in claim 17, wherein the signal shaper comprises a second modulator adapted to modulate the code signal with a predetermined fade signal.

22. **[ORIGINAL]** A system as claimed in claim 16, wherein the first modulator is adapted to modulate a parameter of the first RF signal.

23. **[ORIGINAL]** A system as claimed in claim 22, wherein the parameter comprises one or more of: a power level and a phase.

24. [**PREVIOUSLY PRESENTED**] A system as claimed in claim 22, wherein the first modulator is adapted to simultaneously modulate the parameter of all RF signals within a predetermined wide-band signal path.

25. [**ORIGINAL**] A system as claimed in claim 16, wherein the detector comprises:

a monitor adapted to detect at least a signal component of the second RF signal that is consistent with the signature signal; and

a first comparator adapted to compare the detected signal component to the signature signal, and generate a correlation signal indicative of a degree of similarity between the detected signal component and the signature signal.

26. [**ORIGINAL**] A system as claimed in claim 25, wherein the monitor comprises:

a sampler for sampling the second RF signal;

a filter adapted to digitally filter the sample signal;

a second comparator for comparing the filtered signal to a predetermined threshold, and generate the signal component based on the comparison result.

27. [**ORIGINAL**] A system as claimed in claim 26, wherein the first comparator comprises:

a first signal processor adapted to logically compare respective successive bits of each of the detected signal component and the signature signal; and

a second signal processor adapted to average the comparison result.

28. [**ORIGINAL**] A system as claimed in claim 27, wherein the first signal processor comprises either one of an Exclusive OR logic gate, and an AND logic gate.

29. [**PREVIOUSLY PRESENTED**] A system as claimed in claim 26, wherein the first comparator comprises a third signal processor adapted to calculate a cross-correlation of the detected signal component and the signature signal.

30. **[PREVIOUSLY PRESENTED]** A system as claimed in claim 16, wherein the controller is adapted to operate under control of software code to:

compare the detected correlation to a predetermined threshold value; and

determine an optimum value of a gain of the repeater using the comparison result.

31-56 **[WITHDRAWN]**

57. **[PREVIOUSLY PRESENTED]** An on-frequency repeater of a wireless communications network, the repeater comprising:

a signal generator adapted to generate a signature signal associated with the repeater;

a first modulator adapted to insert the signature signal into a first signal transmitted by the repeater;

a detector adapted to detect a correlation between the signature signal and a second signal received by the repeater; and

a controller adapted to control an effective radiated power (ERP) of the first signal transmitted by the repeater, based on the detected correlation.

58. **[PREVIOUSLY PRESENTED]** An on-frequency repeater as claimed in claim 57, wherein the signature signal associated with the repeater differs from the respective signature signal associated with another repeater.

59. **[PREVIOUSLY PRESENTED]** An on-frequency repeater as claimed in claim 57, wherein the signal generator comprises:

a code generator adapted to generate a code signal; and

a signal shaper adapted to shape the code signal.

60. **[PREVIOUSLY PRESENTED]** An on-frequency repeater as claimed in claim 59, wherein the code signal comprises a predetermined sequence of bits.

61. [PREVIOUSLY PRESENTED] An on-frequency repeater as claimed in claim 60, wherein the predetermined sequence of bits is spectrally white.

62. [PREVIOUSLY PRESENTED] An on-frequency repeater as claimed in claim 60, wherein the predetermined sequence of bits is pre-selected from among a set of orthogonal bit sequences.

63. [PREVIOUSLY PRESENTED] An on-frequency repeater as claimed in claim 59, wherein the signal shaper comprises a second modulator adapted to modulate the code signal with a predetermined fade signal.

64. [PREVIOUSLY PRESENTED] An on-frequency repeater as claimed in claim 57, wherein the first modulator is adapted to modulate a parameter of the first RF signal.

65. [PREVIOUSLY PRESENTED] An on-frequency repeater as claimed in claim 64, wherein the parameter comprises one or more of: a power level and a phase.

66. [PREVIOUSLY PRESENTED] An on-frequency repeater as claimed in claim 64, wherein the first modulator is adapted to simultaneously modulate the parameter of all signals within a predetermined wide-band signal path.

67. [PREVIOUSLY PRESENTED] An on-frequency repeater as claimed in claim 57, wherein the detector comprises:

a monitor adapted to detect at least a signal component of the second signal that is consistent with the signature signal; and

a first comparator adapted to compare the detected signal component to the signature signal, and generate a correlation signal indicative of a degree of similarity between the detected signal component and the signature signal.

68. [PREVIOUSLY PRESENTED] An on-frequency repeater as claimed in claim 67, wherein the monitor comprises:

a sampler for sampling the second signal;

a filter adapted to digitally filter the sample signal;

a second comparator for comparing the filtered signal to a predetermined threshold, and generate the signal component based on the comparison result.

69. **[PREVIOUSLY PRESENTED]** An on-frequency repeater as claimed in claim 67, wherein the first comparator comprises:

a first signal processor adapted to logically compare respective successive bits of each of the detected signal component and the signature signal; and

a second signal processor adapted to average the comparison result.

70. **[PREVIOUSLY PRESENTED]** An on-frequency repeater as claimed in claim 69, wherein the first signal processor comprises either one of an Exclusive OR logic gate, and an AND logic gate.

71. **[PREVIOUSLY PRESENTED]** An on-frequency repeater as claimed in claim 69, wherein the first comparator comprises a third signal processor adapted to calculate a cross-correlation of the detected signal component and the signature signal.

72. **[PREVIOUSLY PRESENTED]** An on-frequency repeater as claimed in claim 57, wherein the controller is adapted to operate under control of software code to:

compare the detected correlation to a predetermined threshold value; and

determine an optimum value of a gain of the repeater using the comparison result.